Teknologi & K3
Las Oksi-Asetilen

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Gas-Gas dalam Pengelasan

Gas Bakar

Oksigen

ASETILEN (C_2H_2)

Dihasilkan dari reaksi antara :

Kalsium Karbida (CaC_2)

+

Air ($2H_2O$)

SIFAT ASETILEN

- Tidak Berwarna
- Tidak Beracun
- Mudah Terbakar
- Berbau

Massa Jenis = 1,1 kg/m3

OKSIGEN (O_2)

Sifat-sifat :

- Tidak Berwarna
- Tidak Beracun
- Tidak Berasa
- Tidak Berbau
- Tidak dapat Terbakar

Massa Jenis = 1,43 kg/m3

PERANGKAT LAS ASETILEN

REGULATOR

REGULATOR

BACK PRESSURE VALVE

KLEM & NIPEL

BOTOL ASETILEN

BOTOL OKSIGEN

SLANG KARET

KE- BRANDER

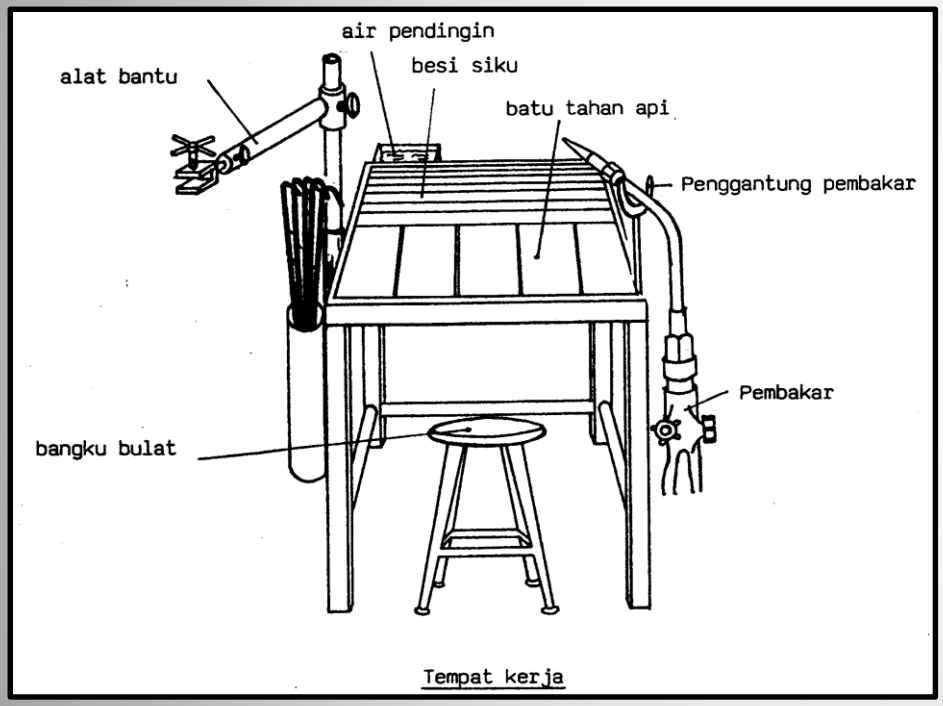
KAWAT LAS

- SPESIFIKASI menurut AWS
  - GB 45, GA 50, GA 60, GB 60, GA 65

  G = Gas, B= Keliatan tinggi, A= Keliatan rendah

  45 = Kekuatan tarik (45 x 1000 psi)
- PENANGANAN KAWAT LAS
  - Bersihkan kawat las
  - Tekuk ujung kawat las
  - Hemat pemakaian
  - Simpan dengan baik

TEMPAT KERJA LAS

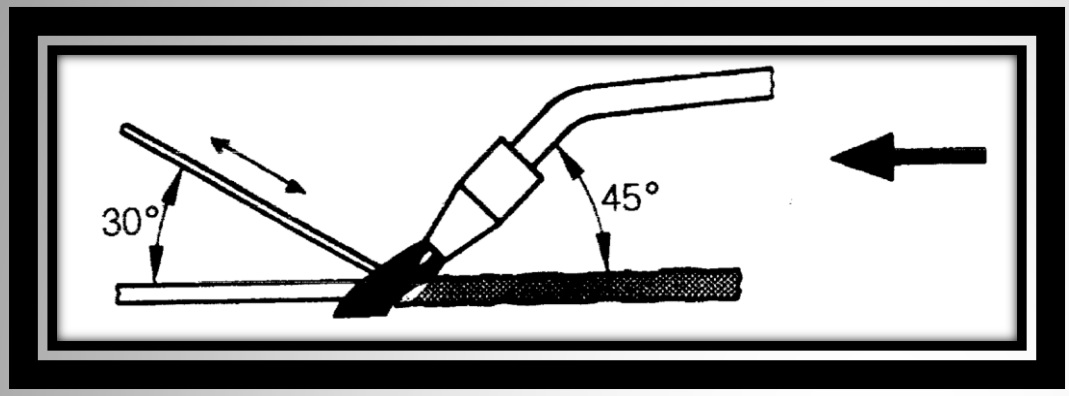


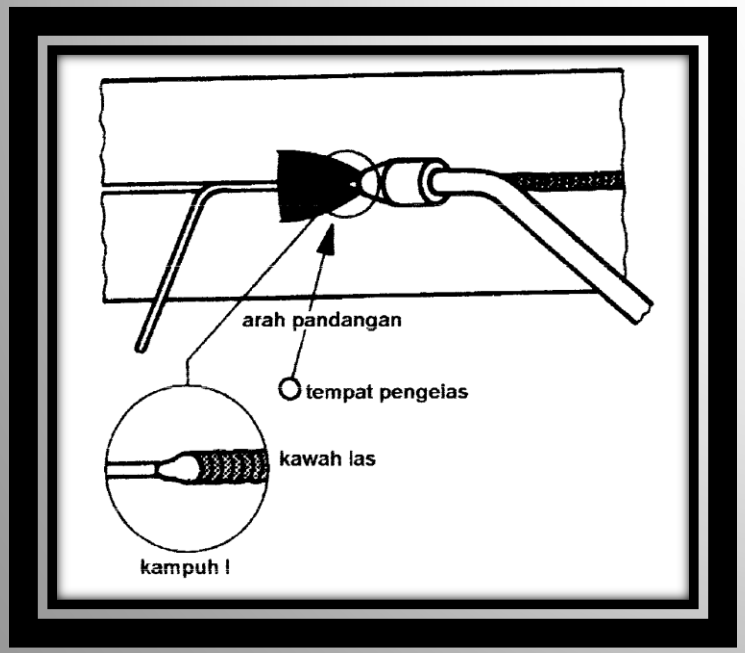
Teknik Pengelasan

Pengelasan ke Kiri

Pengelasan ke Kanan

Pengelasan ke Kiri

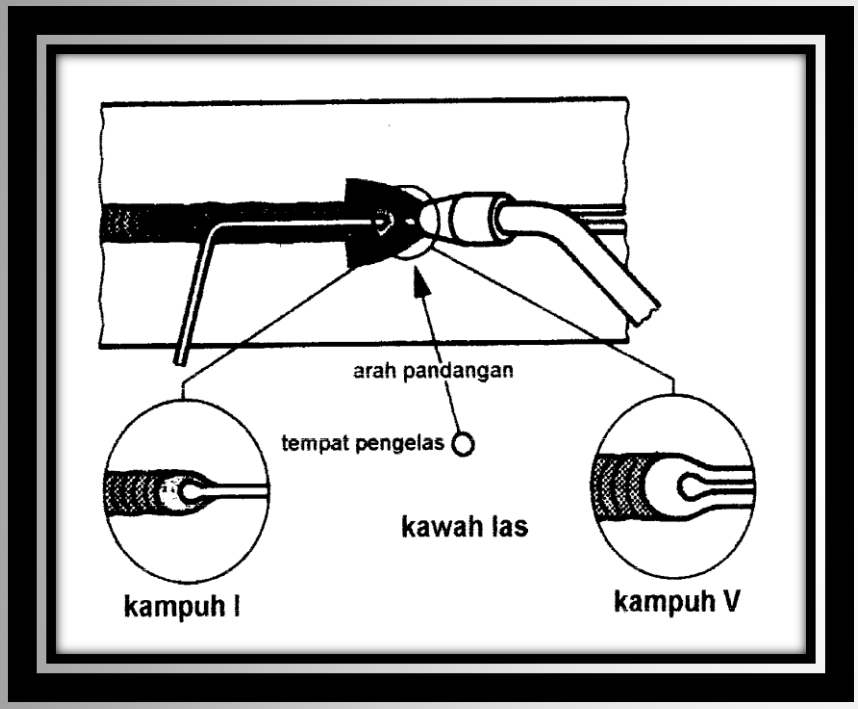


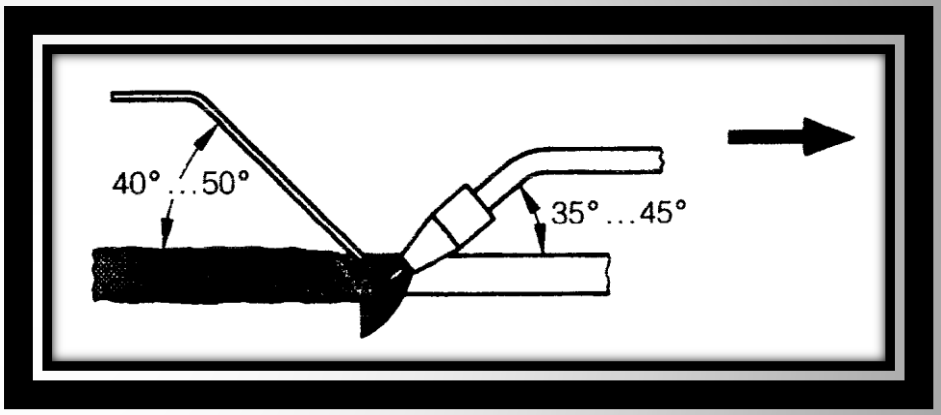


Keuntungannya:

- **Mudah dilaksanakan pada pelat tipis**
- **Permukaan lasan halus**

Pengelasan ke Kanan





Keuntungannya:

- **Cairan las dapt diamati dengan baik**
- **Penembusan baik**
- **Alur las lebih sempit**
- **Keperluan gas lebih kecil**

Macam-Macam Nyala Api Las

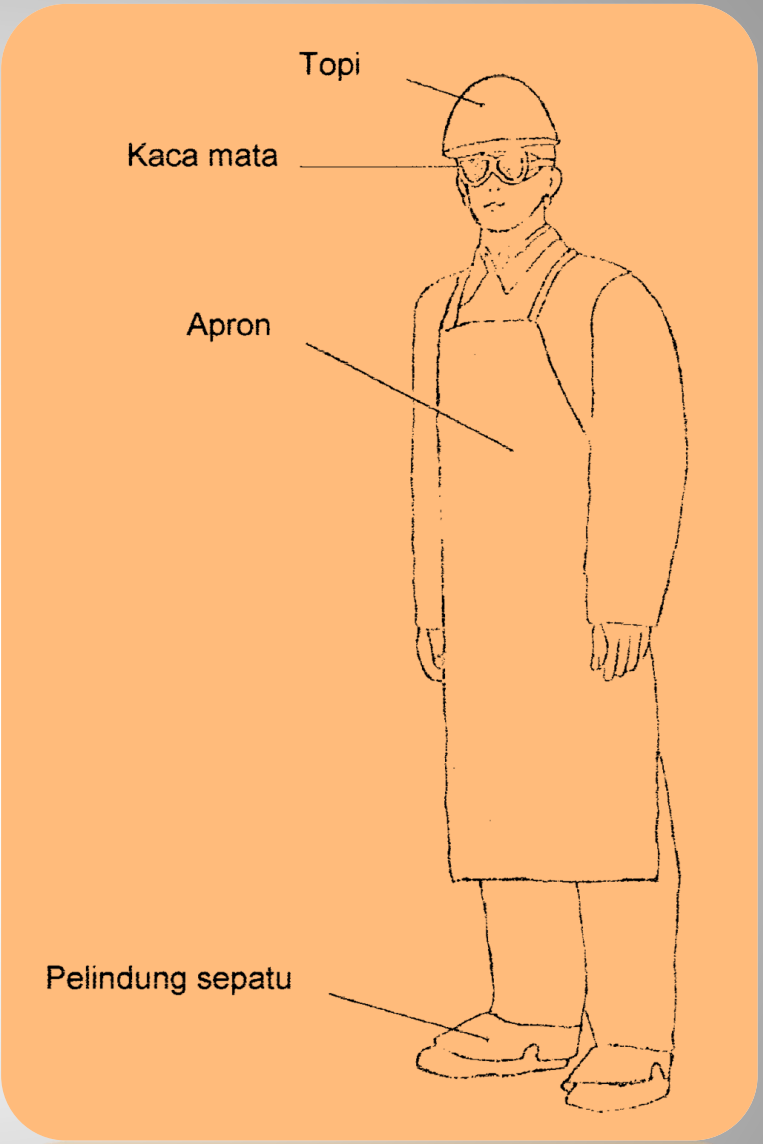
Netral

Oksidasi

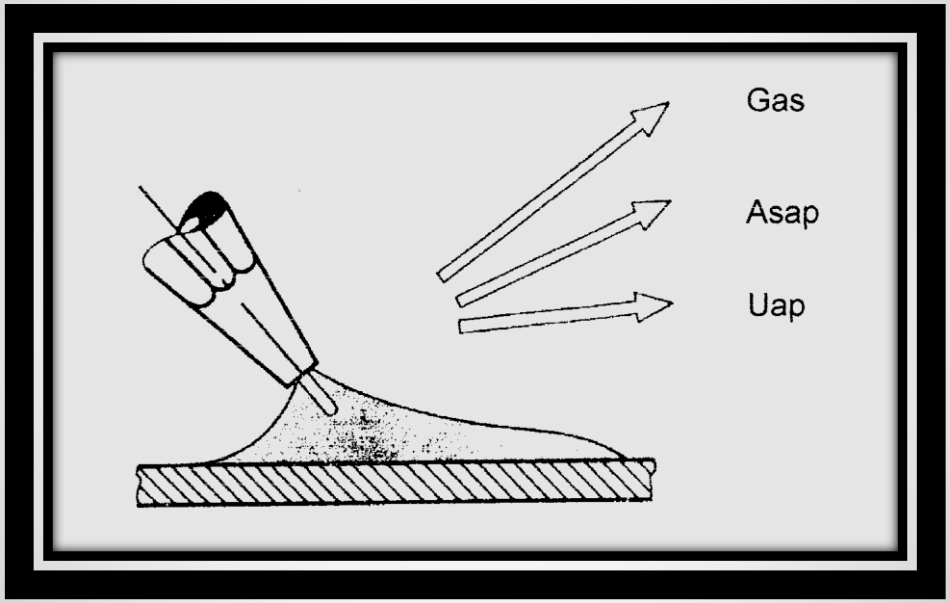
Karburasi

Keselamatan Kerja

Perlengkapan Perlindungan Diri



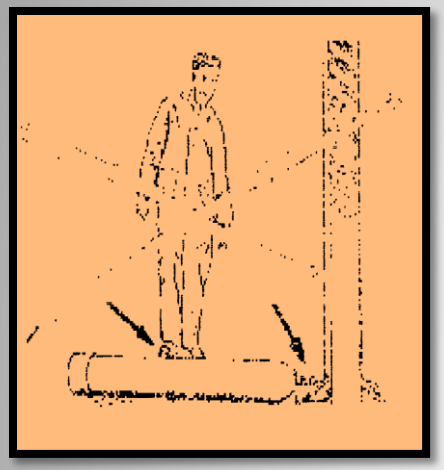
Pencemar Udara pada Las Gas

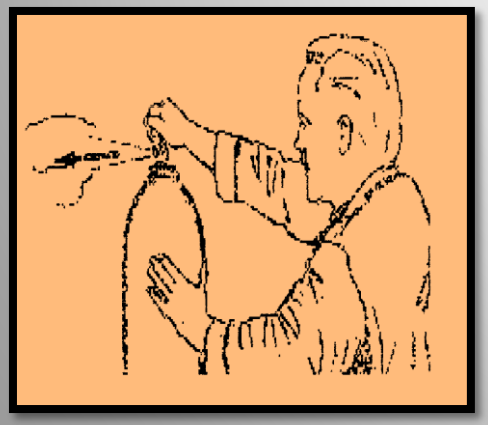


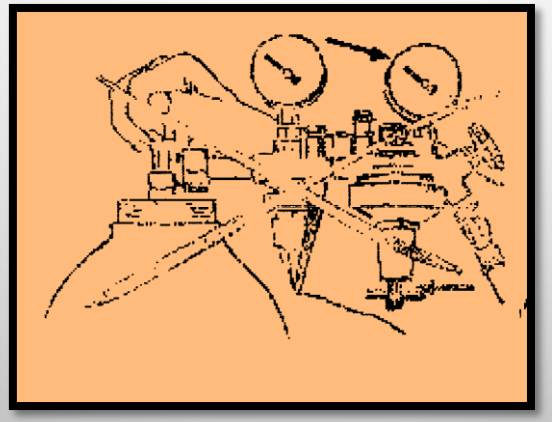
Perlindungan diri dari bahan pencemaran udara

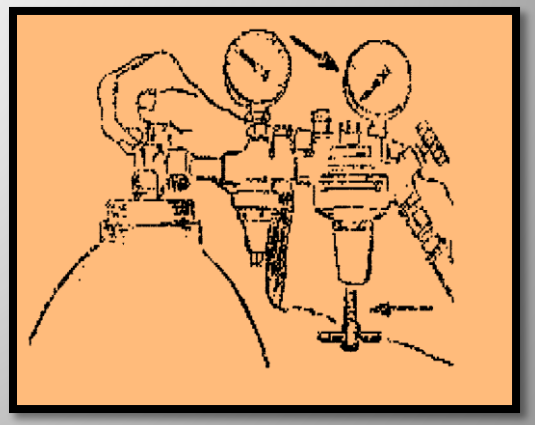
a. Membuat penyedot pencemar udara secara umum atau ventilasi terbuka
b. Membuat penyedot pencemar udara setempat (tempat kerja)
c. Pemberian udara segar ke tempat kerja dengan fentilator
d. Mengenakan masker udara
e. Mengusahakan adanya sirkulasi udara di tempat kerja

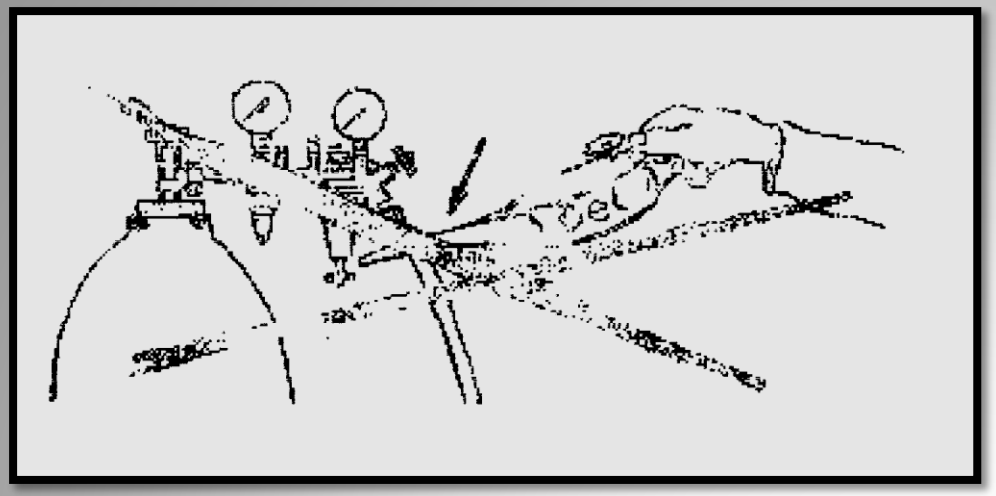
Beberapa Cara Penanganan Perangkat Las Gas

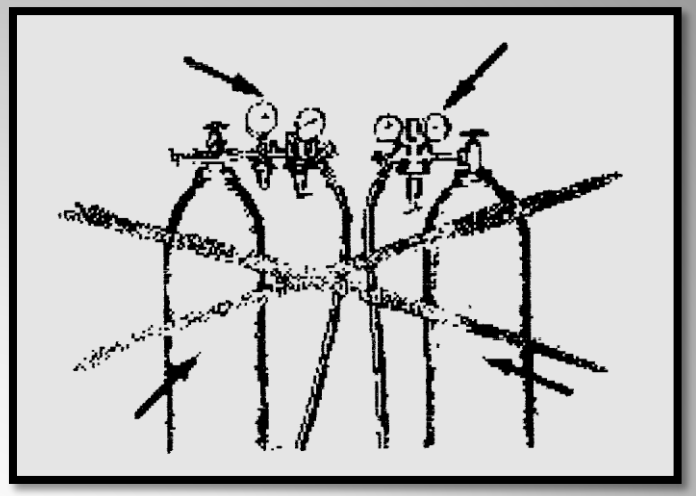


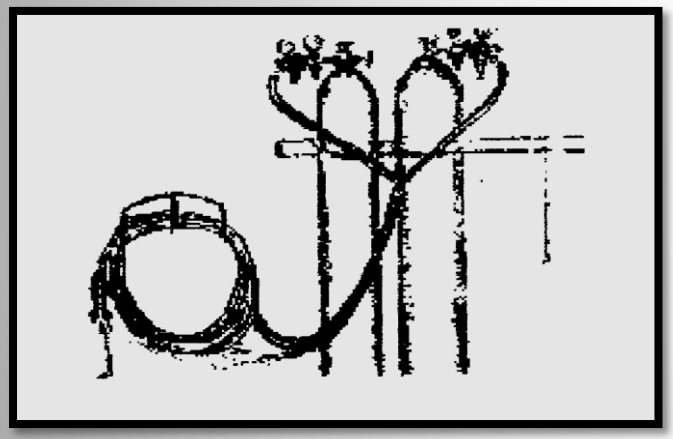


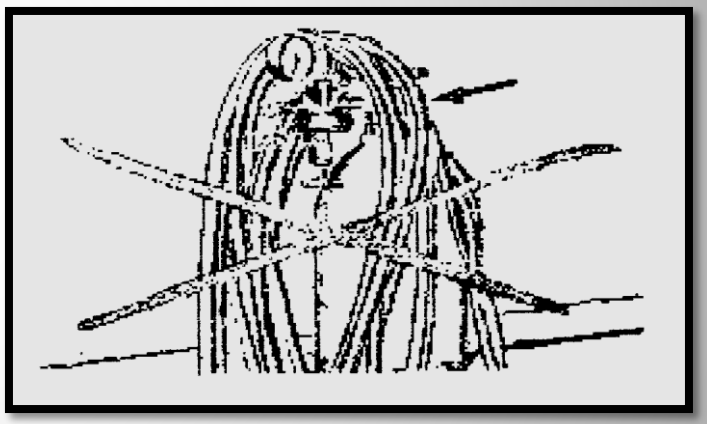


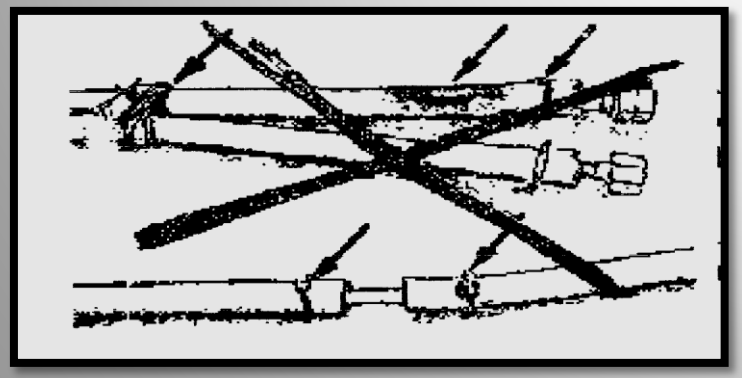


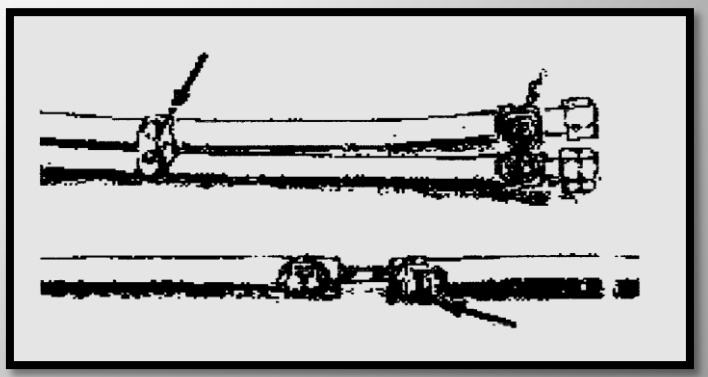


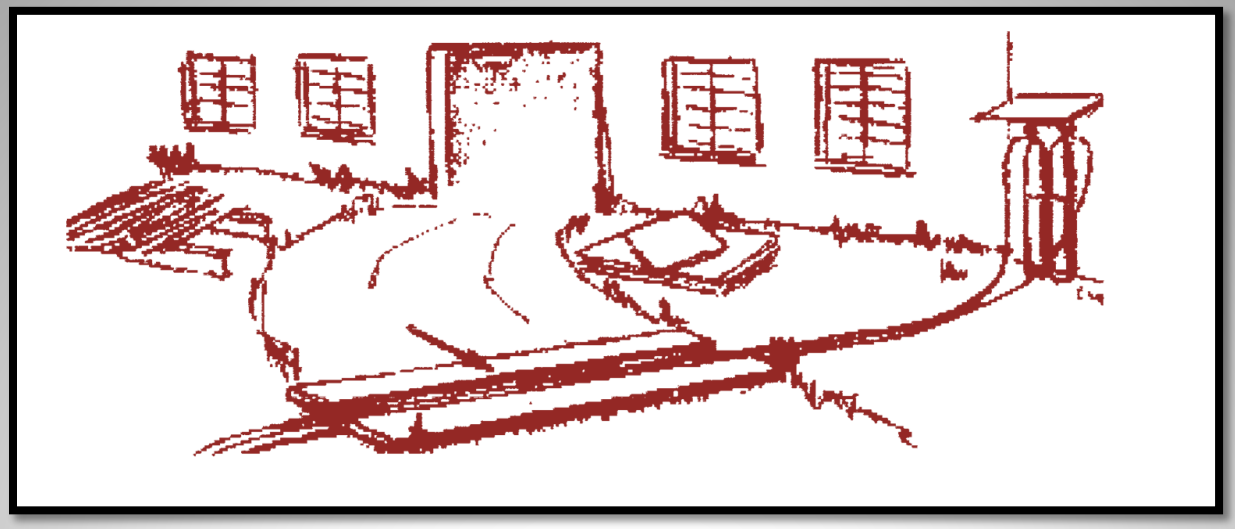


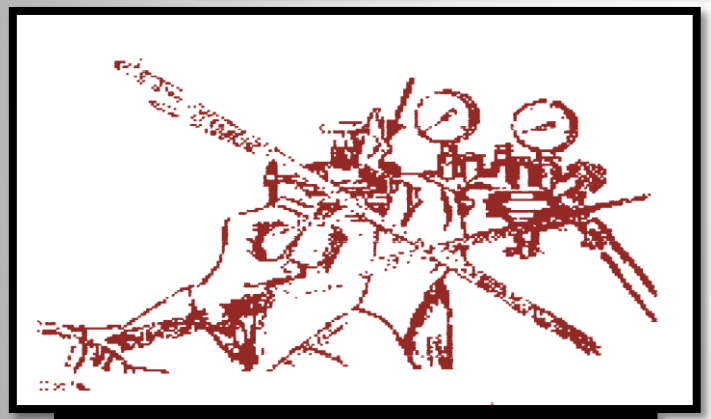


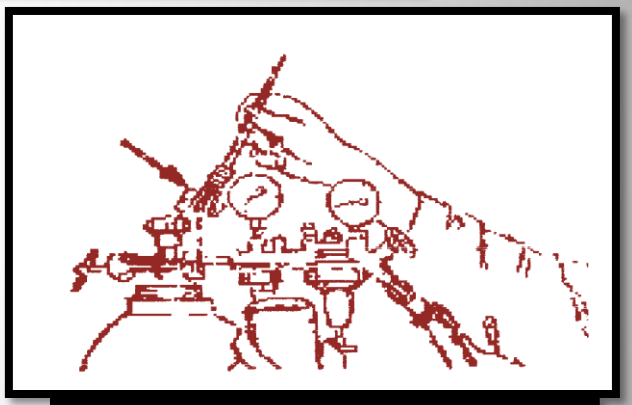


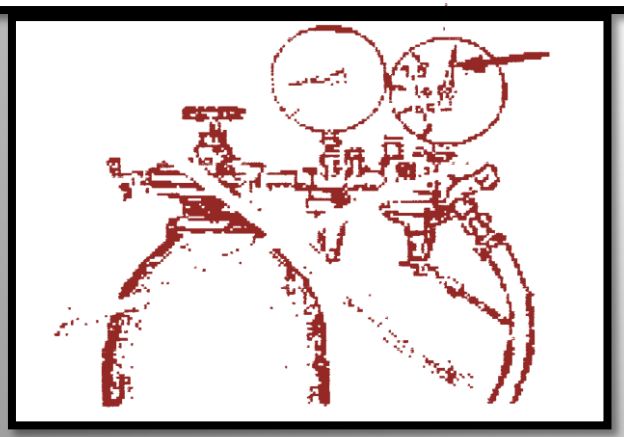


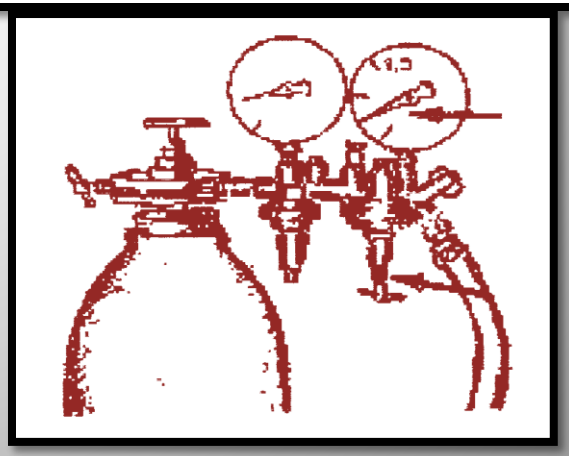


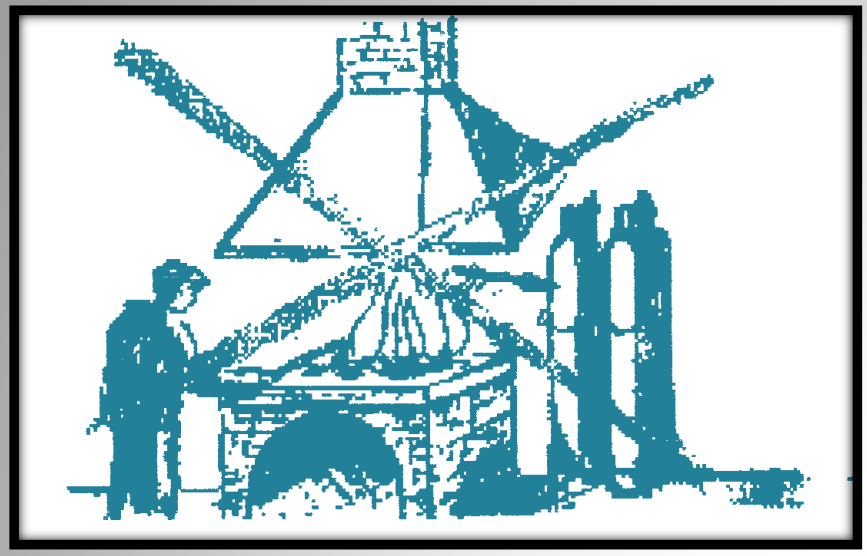


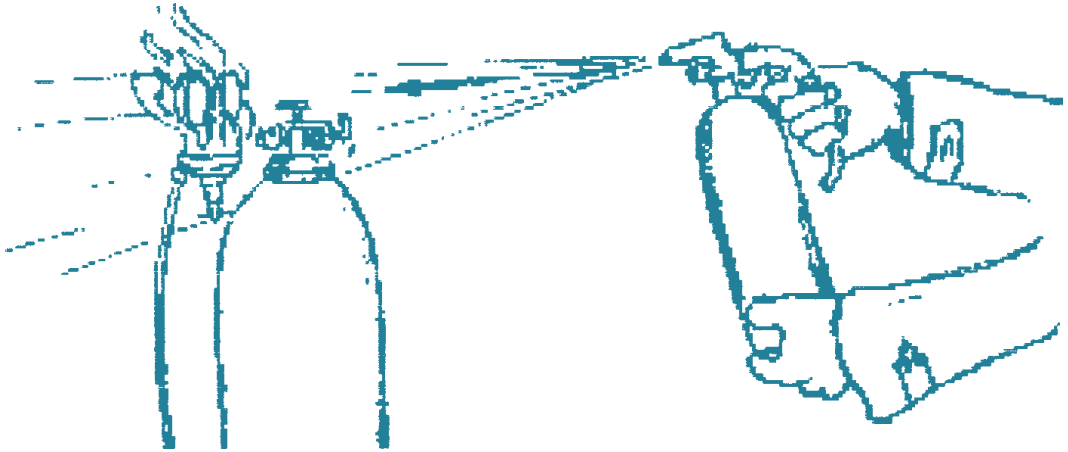




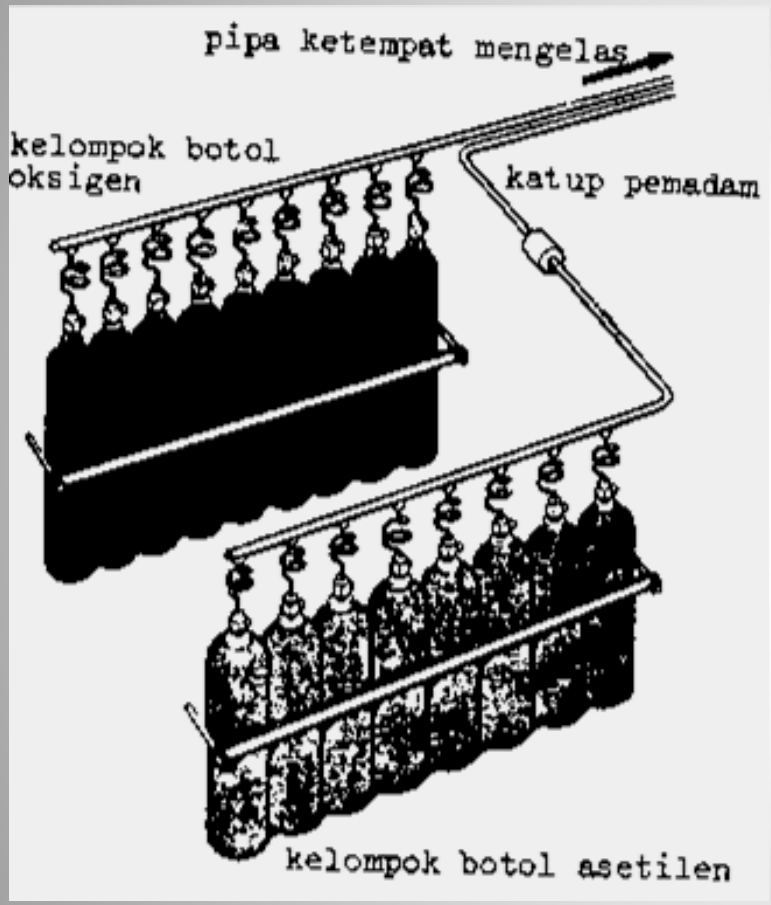




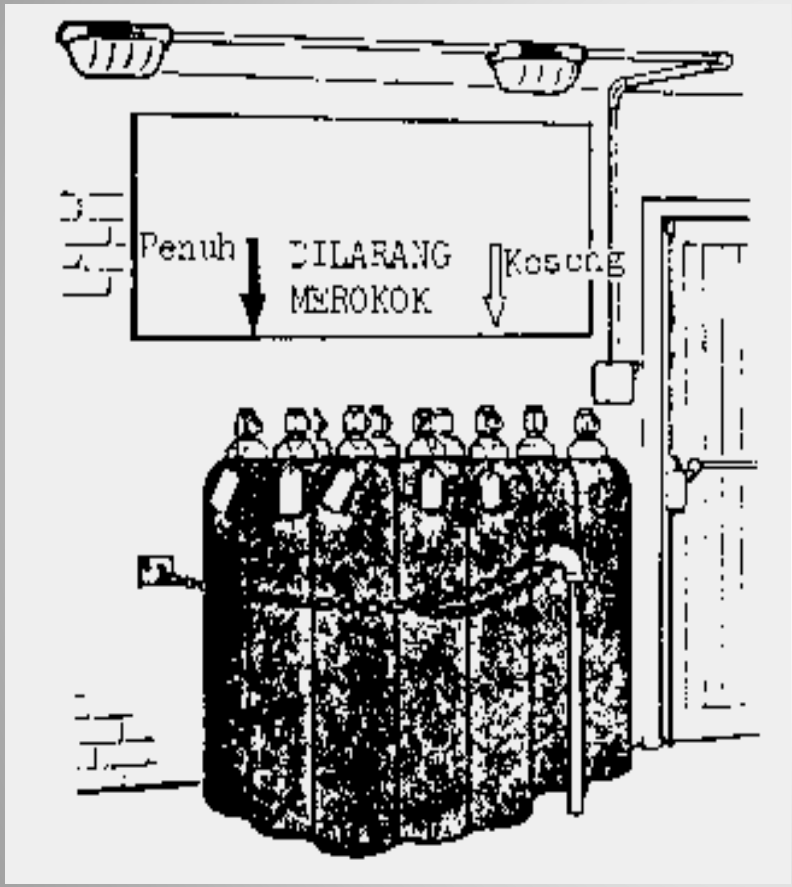


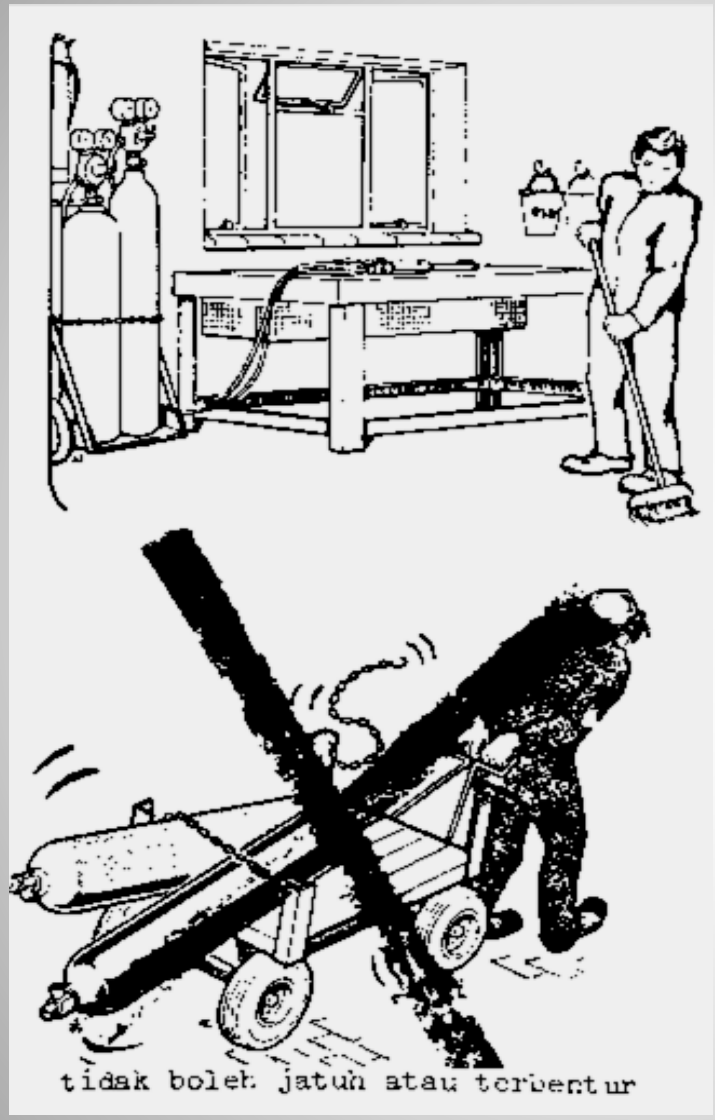


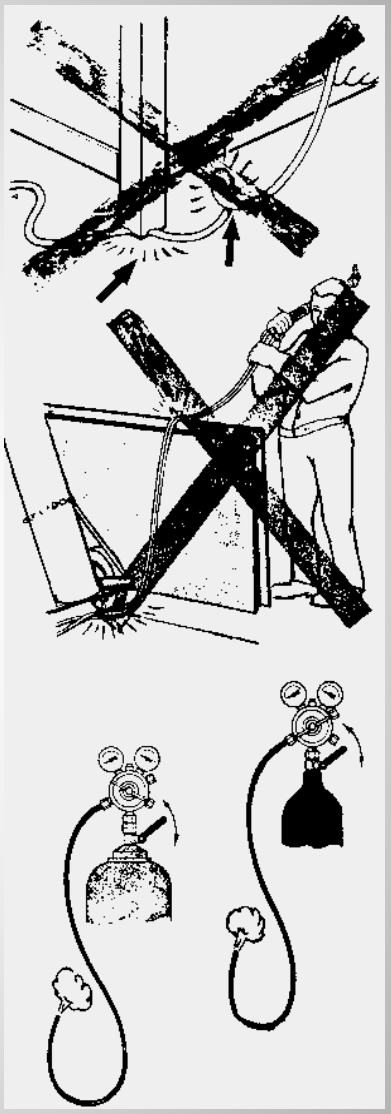
INTSTALASI LAS GAS SISTEM SENTRAL



PENYIMPANAN BOTOL




tidak boleh jatuh atau terbentur

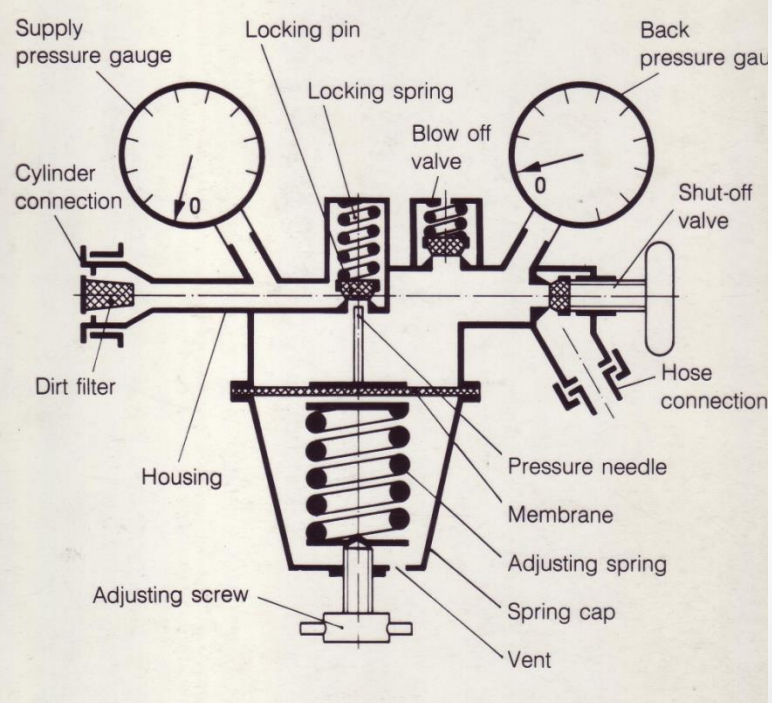


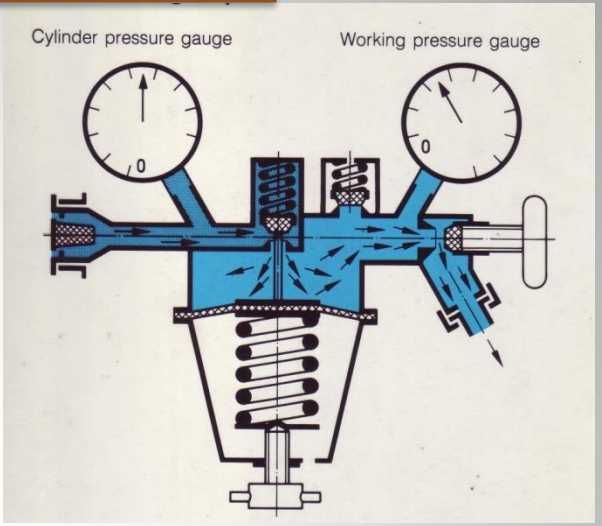
REGULATOR

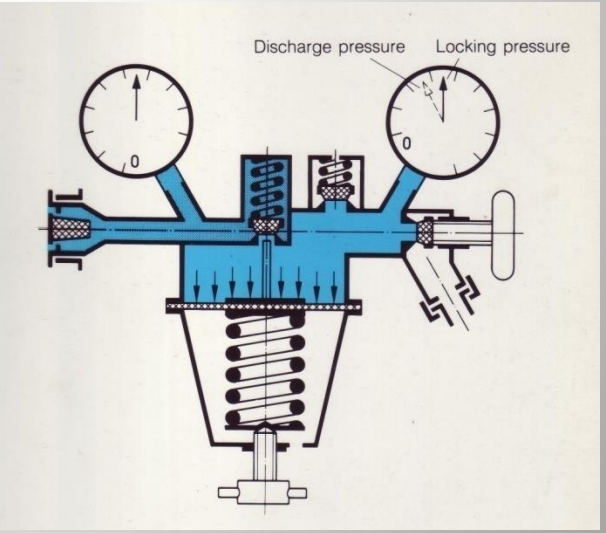
OKSIGEN

ASETILEN

CARA KERJA REGULATOR

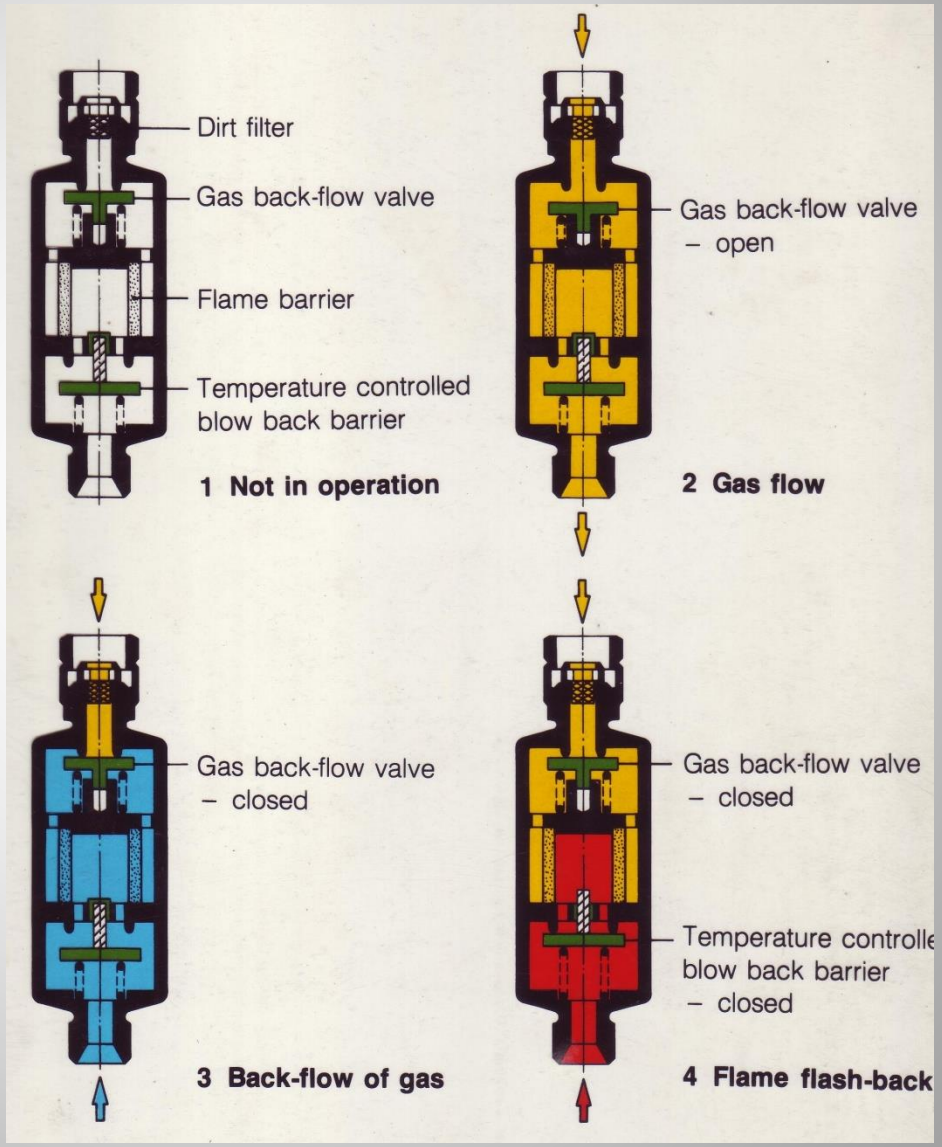






BACK

BACK PRESSURE VALVE



BACK

Slang

Slang Oksigen

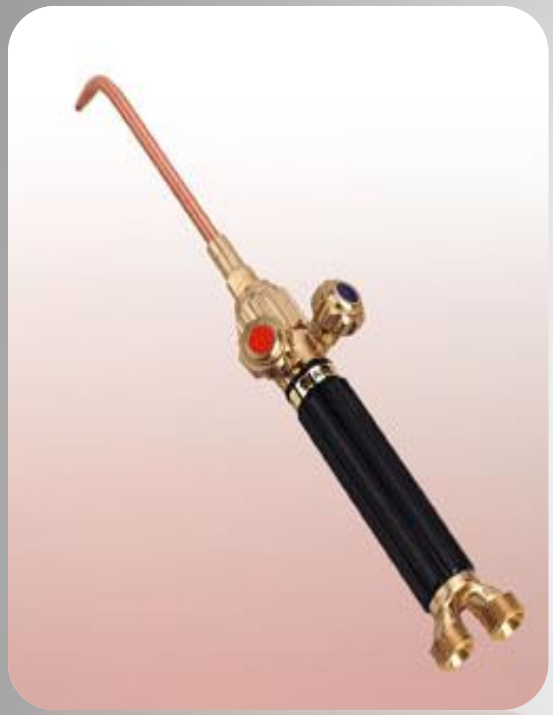
- Berwarna Biru
- Garis tengah dalam 6 mm

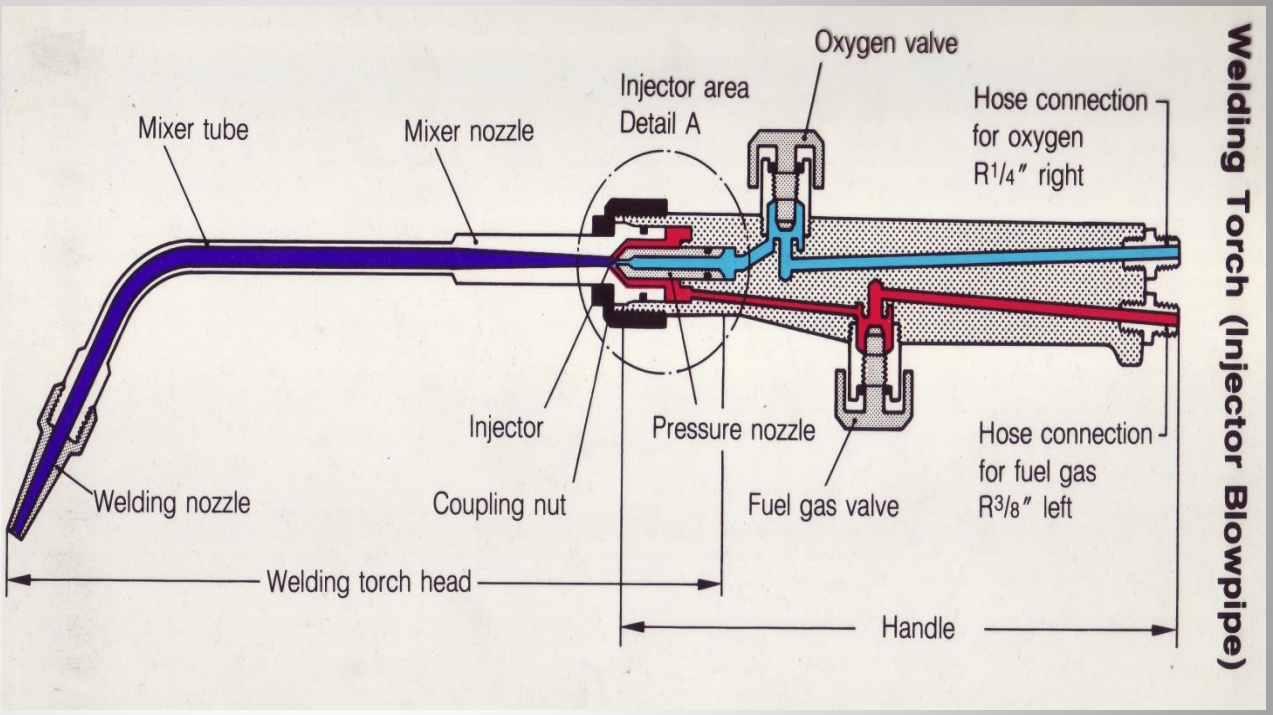
Slang Asetilen

- Berwarna Merah
- Garis tengah dalam 9 mm

BACK

BRANDER (*WELDING TORCH*)





Nomor pembakar		1	2	3	4	5	6	7	8
Tebal benda kerja		0,5-1	1-2	2-4	4-7	7-11	11-16	16-22	22-30
Kebutuhan	L/jam	75	150	300	500	750	1150	1700	2500
	L/m	5,7-10	18-28	125-200	280-420	640-960	640-960	1400-1750	2600-4200
Kegiatan las mm/menit		220-125	140-90	100-55	62-42	45-30	30-20	20-16	16-10
Kebutuhan waktu menit / mm		10-18	7-11	10-18	16-24	23-33	33-50	50-63	63-100

BACK

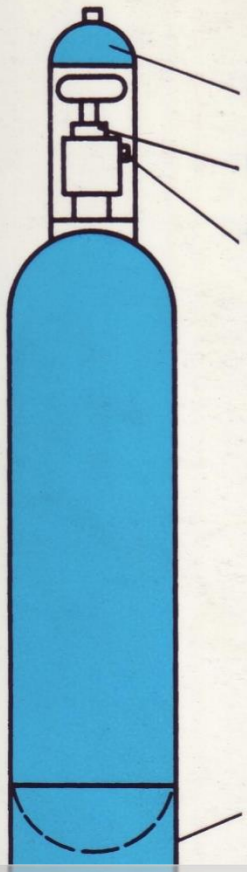
Botol Asetilen

Didalam botol bervolume ruangan 40 liter bermasa pori-pori, diisi aceton 13 l pada temperatur 15^0C , dapat menyimpan asetilen seberat 6,3 kg pada tekanan 18 bar atau 5,75 m3 asetilen pada tekanan normal.

BACK

BOTOL OKSIGEN

50 l Steel Cylinder for Oxygen in Gaseous Form



Gaseous for

p = Cylinder pressure: 200 bar excess pres

V = Capacity of cylinder: 50 litre

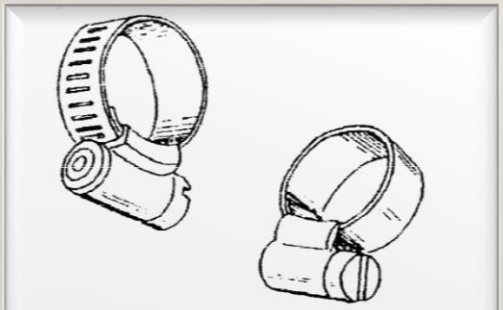
Q = Volume of oxygen: 10,000 litre

Content control

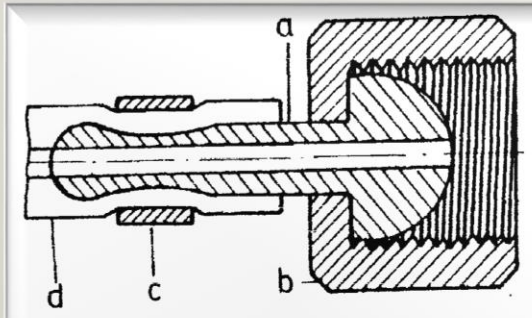
$$Q = p \cdot V$$

BACK

Klem dan Nipel

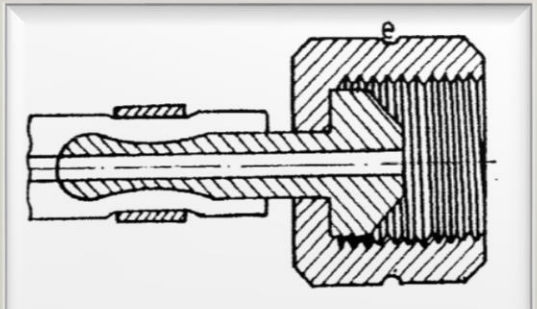


Klem slang



Nipel Zat asam

a. Nipel
b. Mur
c. Klem
d. Slang
e. Keratan (tanda ulir ke kiri)

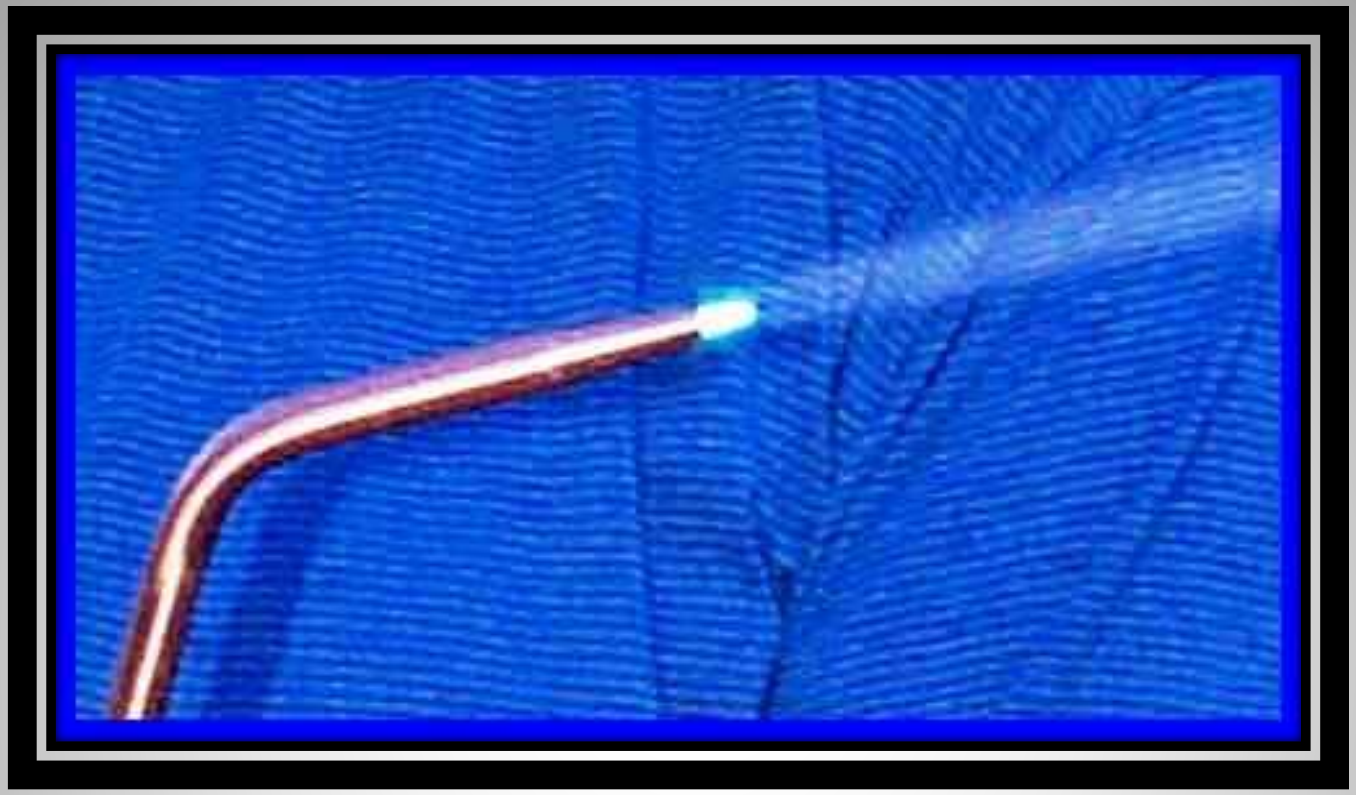


Nipel Asetilen

Pengikat

Penyambung

BACK



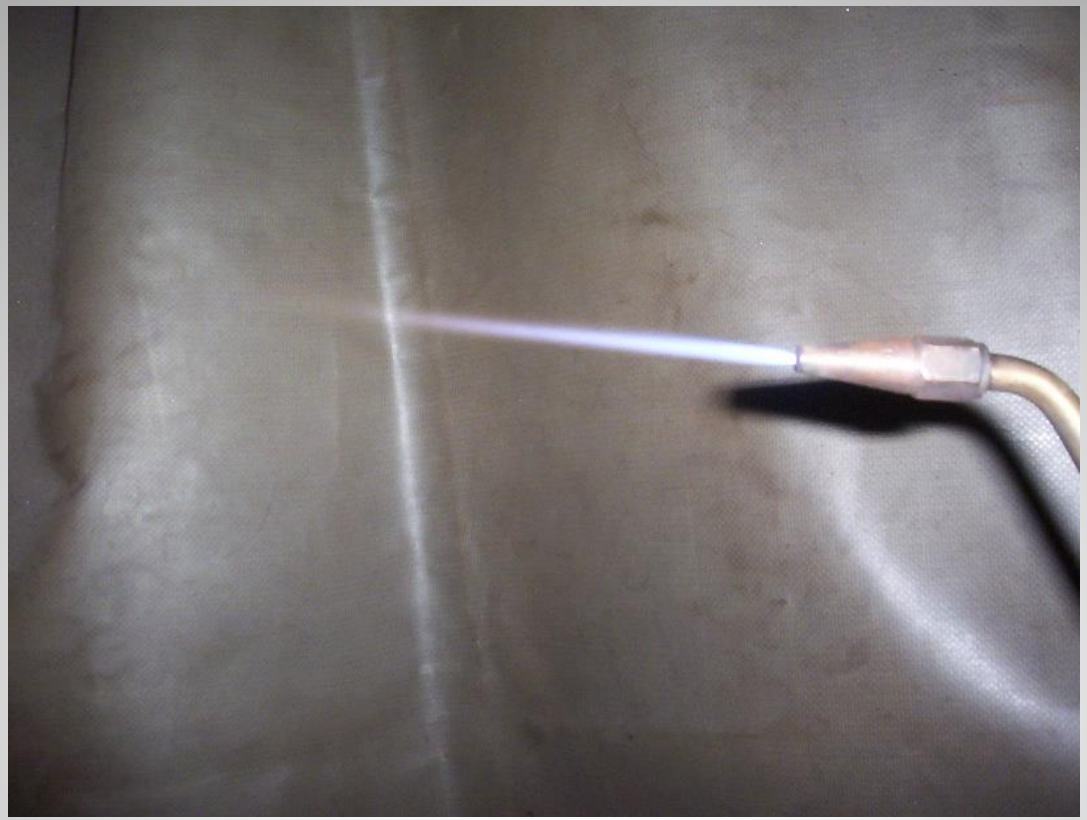
Netral Kuat

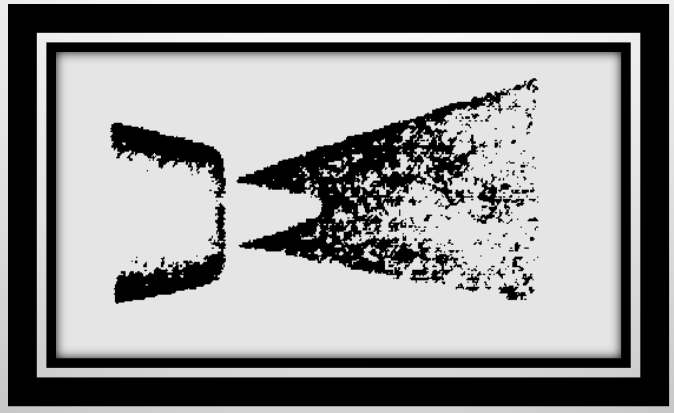
BACK

Netral Lemah

Karburasi

BACK
Slide 12





Oksidasi

BACK

Terima Kasih
Semoga Bermanfaat